

## CLAIMS

1. A nickel based powdered metallic material  
5 comprising in addition to nickel 0 - 4.5 % by weight of  
copper, 0 - 5.0 % by weight of iron, whereby the total  
amount of copper and iron is at least 2.5 % by weight,  
0.05 - 5.0 % by weight of a carbide forming element, 0.5  
- 2.0 % by weight of boron, 1.0 - 4.0 % by weight of  
10 silicon, 0.5 - 4.0 % by weight of phosphorus, 0.01-0.5 %  
by weight of C and less than 2 % by weight of inevitable  
impurities.

2. Material according to claim 1, including copper  
in an amount of 2.5-4.5 % by weight

3. Material according to claim 1 or 2 claim, wherein  
the powdered metallic material comprises less than 3.0 wt  
% iron.

4. Material according to claim 1 wherein the carbide  
forming element is selected from the group consisting of  
20 chromium, tungsten, molybdenum, vanadium, tantalum,  
niobium, titanium and zirconium.

5. Material according to any of the preceding  
claims, wherein the powdered metallic material preferably  
comprises 0.05-1.0 % by weight of a carbide forming  
25 element.

6. Material according to any of the preceding  
claims, wherein the powdered metallic material preferably  
comprises 1.0 - 5.0 % by weight of carbide forming  
element.

30 7. Material according to any of the preceding  
claims, wherein the powdered metallic material preferably  
comprises 0.6 - 1.6 % boron and 1.6 - 3.5 % silicon.

8. Material according to any of the preceding  
claims, wherein the powdered metallic material preferably  
35 comprises 1.5 - 3.0 wt % phosphorous.

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9. Material according to any of the preceding claims, wherein the powdered metallic material preferably comprises 0.01 - 0.5 % by weight of carbon and preferably less than 0.3 % by weight.

5 10. Material according to any of the preceding claims, wherein the powdered metallic material is a homogenous alloy.

11. Material according to any of the preceding claims, wherein the powdered metallic material is a gas atomized powder or a water atomized powder.

12. A method of forming a wear resistant surface coating on a cast iron substrate, comprising the steps of providing a nickel based powdered metallic material comprising in addition to nickel 0 - 4.5 % by weight of copper, 0-5.0 % by weight of iron, whereby the total amount of copper and iron is at least 2.5 % by weight, 0.05-5.0 % by weight of a carbide forming element, 0.5-2.0 % by weight of boron, 1.0-4.0 % by weight of silicon, 0.5-4.0 % by weight of phosphorus, 0.01-0.5 % by weight of C and less than 2 % by weight of inevitable impurities,

optionally preheating the substrate to a temperature in the range of 300-800 °C; and

applying and melting at least one layer of the powdered metallic material onto the substrate by means of thermal coating, whereby formation of carbide occurs on the surface of the substrate.

13. The method according to claim 12, wherein thermal coating includes the use of powder welding or plasma transferred arc welding.

14. The method according to claim 1, wherein thermal coating includes the use of a equipment providing a fusing temperature of 850-910 °C.

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